

The Transparency Universe

Part 1

With your partner, choose a home galaxy on the sheet labeled Galaxy Field 1.

We choose galaxy _____.

Galaxy Field 2 shows the new positions of the galaxies after some time has passed. Lay the Galaxy Field 2 transparency over Galaxy Field 1 and align the letters of your home galaxy so it does not appear to move (be careful not to rotate Field 2).

Points to discuss with your group:

- What can you observe about how the other galaxies appear to have moved?
- What direction are the galaxies moving?
- Have all the galaxies moved the same distance?

Notes:

Now pick a new home galaxy. We choose galaxy _____.

Move the transparency so that your new home galaxy is lined up between Fields 1 and Field 2, and discuss whether any of your conclusions have changed.

Notes:

Part 2

Once again you should pick a home galaxy. My galaxy is _____. As before, lay the Galaxy Field 2 transparency over Galaxy Field 1 and align the letters of your home galaxy so it does not appear to move.

Using a coloured transparency marker, draw straight arrows on Field 2 from the center of each galaxy's position on Field 1 to the center of the same galaxy's position on Field 2. The arrows represent the direction and speed of motion of the galaxies.

For a selection of the galaxies (marked in the table), measure the distance of each one from your home galaxy, and the length of the arrow between each galaxy in Field 1 and Field 2.

<i>Galaxy</i>	<i>Distance from my own galaxy (cm)</i>	<i>Length of arrow between galaxy in Field 1 and Field 2 (cm)</i>

Now you can use the graph paper to mark these galaxies on the graph. Mark a small cross for each galaxy at the point corresponding to the galaxy's distance (x-axis) and length of arrow (y-axis). What pattern do you see?
